

Science Curriculum Intent



Academy Values & Ethos

Every child deserves an education. Our primary aim is to support and re-engage young people, enabling them to think positively about their future pathway, and life after our academy, whether that be re-integration into mainstream, Further Education or employment. Our Vision is "Inspire, Achieve, Exceed".

Our Pupils will:

- Feel safe, valued and trusted
- Recognise and achieve their full potential
- Take responsibility for their behaviour, and make healthy lifestyle choices
- Be positive about themselves and their future
- Be tolerant of others, and of the beliefs and views of others
- Be successful learners, both independently and when working with others
- Be self-motivated and have high expectations

We will achieve this by:

- Creating a safe learning environment, free of stigma and negativity
- Celebrating the success and achievements of every member of the learning community
- Establishing nurturing and supportive relationships between staff and pupils
- Setting high expectations for behaviour and academic success
- Providing a broad, balanced and relevant curriculum that provides the skills, confidence and qualifications to access opportunities in life
- Innovating learning, to engage and inspire
- Promoting tolerance and mutual respect
- Providing opportunities for pupils, parents and carers to voice opinions which form part of the decision-making process
- Providing an inclusive programme of learning opportunities and experiences that promote engagement.

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Intent of the Science Curriculum

Every pupil arrives at the academy at different points and all with differing experiences of Science. Therefore, we are challenged with providing a curriculum that allows pupils to bridge gaps but also provides an opportunity for them to develop their confidence with scientific enquiry. Our aim is to develop pupils' interest in the world and its processes and for them to understand the purpose of learning about scientific questioning and investigation. Pupils have the opportunity to investigate ideas, critically evaluate and question evidence through Biology, Chemistry and Physics. We provide a curriculum that enables pupils to develop their curiosity in the world and learn about how natural phenomena can be explained. Pupils will have the opportunity to experience success as rational and critical thinkers and learn to question concepts and not simply believe what they are told. We aim to support our pupils to question and consider sources of evidence.

Our curriculum ensures that pupils are ready for their future education, whether this is to return to mainstream, study of Biology GCSE at KS4 at our academy or to access Further Education or employment. We aim for pupils to have the necessary skills of knowledge, enquiry and fascination with the natural world, that they will need in their lives beyond our academy.

Our Science curriculum enables pupils to:

- Develop their knowledge and curiosity of the natural, physical and human world around them
- Become confident to question evidence
- Develop their analytical and critical thinking skills
- Learn about the role that scientific enquiry plays in the wider world
- Relate their scientific knowledge to its uses in society and in the future.

Implementation of the Science Curriculum

Our Long Term Plan is divided into 6 Half Terms. Curriculum content is taken from elements of the National Curriculum. At Key Stage 3 we offer a cyclical pattern of Blue Year, Green Year. Both years cover all the KS3 Assessment Objectives. The sequence of learning is constructed to develop pupil's scientific skills through a variety of topics covering Physics, Biology and Chemistry. The sequence of learning is planned to take account for the transient nature of our academy population. There is a repetition of key skills during each cycle (whilst giving the opportunity for each pupil to build depth and mastery) delivered through a range of topics and scientific ideas.

At KS4 we now offer GCSE Biology so that pupils can develop links with the PSHRE curriculum and this supports our intent of pupils being informed to keep themselves healthy both mentally and physically.

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Outcomes

We aim for all pupils to experience individual success in Science through individual target setting and use of high expectations.

- Regular assessment using Reflection Time Marking Sheets
- Reintegration to mainstream education
- Progress against our 14 Steps assessment framework (KS3)
- AQA GCSE Biology
- AQA Combined Trilogy GCSE (summer 2023 last exam sittings – no longer offered after this)

Personal Development

The Science Long Term Plan has a careers focus for each half term which links the topic to careers where scientific knowledge and skills are vital. Throughout the curriculum, there are opportunities to link scientific skills to real life applications and build foundations for pupils' next steps. They are encouraged to be aspirational and are exposed to a wide variety of careers.

Science Medium Term Plans create explicit opportunities for the promotion of fundamental British Values. Examples include:

British Value	Scheme of Learning: Lesson Content
Democracy	<ul style="list-style-type: none">- Green HT3: Extracting useful materials: How democracy impacts renewable/non-renewable energy resources and the environment. Pupils will consider how/why governments take different approaches to obtaining/using energy resources. (Also applies to, 'Rule of Law, Mutual respect and Tolerance').- Blue HT6: Organs, immune system: How democratic processes enable or restrict scientific developments. E.g., Genetic engineering to develop medicine. Pupils to discuss how research has impacted our understanding of our immune system and how democracy limits/helps scientific experiments.
Rule of law	<ul style="list-style-type: none">- Y11 HT5: Infection and response (drug development). How pharmaceutical companies must follow laws when developing new drugs. (Also applies to 'Democracy').
Individual liberty	<ul style="list-style-type: none">- Green HT1: Healthy diet, healthy body. When discussing healthy lifestyles and lifestyle choices; Emphasis that there is individual lifestyle choices.- Y10 HT3: Communicable and non-communicable diseases. Individual freedom to use or not use birth control. Individual freedom to accept or use life support in maintaining circulatory and respiratory systems; Individual freedoms to decide

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	whether to donate organs for transplantation. Pupils are encouraged to ask a wide range of questions in this unit and further PHSE/SMSC/British value opportunities regularly arise.
Mutual respect	- HT1-6 (Key example Y10 HT3/4: Diseases and pathogens): Sensitive topics to do with health, disease, viruses, lifestyles. Pupils often have experience and/or questions about these topics and mutual respect and an honest classroom atmosphere is encouraged.
Tolerance	- HT1-6: Practical lessons: Behaviour in the classroom/lab, applying health and safety to clothing and using equipment. (Also applies to 'Rule of Law'). - Blue HT4 - STEM – Engineering design considerations of making a quality prosthetic limb: How humans can overcome serious injury and their tolerance to coping with new challenges.

Science Medium Term Plans create explicit opportunities for pupils' SMSC education, including Religious Education. Examples include:

SMSC	Scheme of Learning: Lesson Content
Social	- Green HT1: Healthy diet/body: How socialising forms part of a healthy lifestyle, with links to exercise and group activities. - Blue HT1: Waves: How light pollution effects local populations.
Moral	- Green HT3: Extracting useful materials. Learning about the future implications of the use of finite resources and landscape changes for example by looking at different methods for generating our energy. This also links to local facilities and services should as the nearby power station. - Y10 HT3: Aids and other viruses: Understanding and acceptance of how viruses effect people. Example of 'not reading a book by its cover' (Photo of businessman with HIV, compared to a homeless man without illness).
Spiritual	- Green HT4: Forces and spaces: Our Solar System and the universe. Discussion about alternative theories about the creation of the universe, similarities and differences between different religions and science. -
Cultural	- Blue HT3: Food webs, interdependence: Human/mankind impact on food webs and ecosystems. Pupils will consider the impact of human intervention on natural food webs and the wider ecosystem. - Y10 HT5: Bioenergenetics: Aerobic and anaerobic systems: Discussions of how different cultures have a natural advantage for certain energy systems and sports. E.g. Long distance runners, weight lifters, winter sports. -

Related Documents in the Teacher's Subject Folder

- Long Term Plan

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- Medium Term Plans
- Subject marking expectations
- Pupil progress data